

## ABSTRACT OF THE DISCLOSURE

A novel echo cancellation reference ("ECR") training signal is inserted into the current ATSC 8 VSB data stream to achieve improved echo rejection while maintaining compatibility with the ATSC 8 VSB digital ATV standard. The novel ECR training signal is also suitable for other multipath or dispersive digital communication channels. A pre-equalization subsystem is included in the digital ATV system as a front end to the VSB receiver, and is trained with preferably the novel ECR training signal. One type of pre-equalization subsystem provides a fully ATSC compliant signal at its output, and therefore is particularly useful with standard VSB receivers. Another type of pre-equalization system provides a signal at its output which is ATSC compliant in some respects but which retains the ECR signal, and therefore is particularly useful for signal relays, analysis purposes, and other applications in which the residual channel information is important.